Noise Pollution Case Study: Cetaceans in Hong Kong

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Abstract

Hong Kong has two resident species of cetacean: the Indo-Pacific humpback dolphin and finless porpoise. However, Hong Kong is one of the busiest ports in the world, with approximately half a million oceanic and river-going vessels travelling through its waters every year, including over 10,000 transits by high speed ferries through the area of greatest humpback dolphin abundance. This shipping traffic will eventually increase, as new regular shipping routes to Hong Kong from mainland China have been proposed. Studies have demonstrated changes in dolphin behaviour in response to boat traffic, including avoidance of fast vessels.

In 1995 a sanctuary was established by the Hong Kong government around the islands of Sha Chau and Lung Kwu Chau, an area important for resident humpback dolphins. However, over 200 vessels can surround this sanctuary area at any time, and the Urmston Road shipping channel is located immediately to the north of the sanctuary. The sanctuary itself was a measure to mitigate, and compensate, for the construction of a temporary aviation fuel receiving facility off Sha Chau, the construction of which incorporated pile driving and additional boat traffic. A bubble curtain was used to try to mitigate the noise produced by the pile driving.

Adjacent to the sanctuary in the south is Chek Lap Kok airport, which when at full capacity will have over 700 planes descending and taking off daily, directly over the sanctuary and other critical dolphin habitat. The airport itself is constructed from an island which was an area frequently used by dolphins, prior to the infilling of the surrounding waters and the demolition of the island itself in 1993 to produce the airport platform; all activities involving high noise input into cetacean habitat.

In addition, there are increasing numbers of dolphin-watching vessels specifically targeting areas of high dolphin abundance. A recent land-based study demonstrated that longer dolphin dive times, and shorter periods at the surface, were recorded when dolphin-watching boats were present. Recently, small motorized boats have also been reported chasing dolphins at high speed to the south of the sanctuary area.

Cetaceans in Hong Kong are exposed to high levels of anthropogenic contaminants, their food supply is depleted, and there is evidence of some anthropogenic mortality and injury through fisheries by-catch and ship-strikes. Noise is adding another, potentially major, anthropogenic stressor to already impacted populations.